

AI-Enabled QR Code Attendance System
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PROJECT TITLE

AI-Enabled QR Code Attendance System

BUSINESS CONTEXT

Many institutes still use manual attendance, which is slow and prone to errors. A QR-based AI system solves this by scanning student QR codes and marking attendance instantly. This improves speed, accuracy, and data management.

PROBLEM STATEMENT

Educational institutes need a faster and reliable attendance system that:

- Marks attendance automatically
- Reduces human effort
- Prevents proxy attendance
- Saves attendance logs safely
- Works even for large classrooms

OBJECTIVES

- Build a QR scanner that reads data from student QR codes
- Decode the QR code using AI/computer vision
- Extract student ID and name
- Automatically log date and time
- Save attendance in CSV/Excel format
- Provide clean attendance analytics

TECH STACK

- Python
- OpenCV
- Pyzbar
- Pandas
- Numpy
- DateTime

DATASET DESCRIPTION

The system does not require a pre-existing dataset.

Each student has:

- A unique student ID
- Name
- QR code holding encoded details

The system generates the attendance dataset with:

student_id | name | date | time | status

METHODOLOGY

1. Generate QR codes for each student.
2. Use a camera to capture the QR code.
3. Decode the QR using Pyzbar.
4. Log attendance with timestamp.
5. Save data to CSV.
6. Optionally visualize attendance trends.

EXPECTED OUTCOMES

- Automation of attendance
- Zero proxy possibility
- Instant data storage
- Faster classroom flow
- Higher accuracy

OPTIONAL EXTENSIONS

- Real-time attendance dashboard
- Email alerts
- Cloud storage
- Multiple QR detection